

Appl. No. 09/916,247  
Amdt. Dated January 21, 2004  
Reply to Office action of October 22, 2003

### **REMARKS/ARGUMENTS**

#### **Double Patenting**

Claims 26 to 34 were rejected for obviousness type double patenting in relation to claims 1 to 4 of U.S. Patent No. 6,303,035. A Terminal Disclaimer to Obviate an Obviousness Type Double Patenting Rejection is being filed with this response in relation to U.S. Patent No. 6,303,035. Accordingly, the Applicants submit that the double patenting rejection no longer applies.

#### **Amendments to the Claims**

Part (b) of claim 26 has been amended to refer to water in the tank at ambient pressure and to the permeate side of the membranes being subject to a negative pressure relative to the pressure of the water in the tank. These changes are supported by the application at Figure 1 and page 7, lines 9-25.

Claim 26 has also been amended to replace the reference in part (f) (formerly part (h)) to backwashing the membranes with a cleaning chemical for a selected duration to wetting the membranes with a cleaning chemical having a selected concentration for a selected duration. This amendment is supported by page 11, lines 2-15 and page 16, line 28 to page 17, line 20.

Other claims have been amended to correspond with the changes to claim 26. The Applicants submit that no new matter has been added by these amendments.

#### **Claim Rejections – 35 USC 102**

Claims 26 to 36 were rejected as being anticipated by Smith U.S. 5,403,479. The Applicants respectfully traverse this rejection and submit that claims 26 to 36 are not anticipated by Smith '479. Further, the Applicants note that claims 26 to 30 were rejected as being anticipated by Smith '479 in the Office Action dated November 25, 2002. By Response, dated March 6, 2003, the Applicants argued that claims 26 to 30

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were not anticipated by Smith '479. In the Office Action dated May 16, 2003, claims 26-30 were not rejected as being anticipated by Smith '479. The Applicants submit that the present Office Action (dated October 22, 2003) raises issues which have already been resolved in favour of the Applicants.

Regarding claim 26, the Office Action notes that Smith does not advocate draining the tank as in claim 26. But, the Office Action states that Smith discusses draining the tank during cleaning as in claim 26 at column 10, lines 64-68 and column 11, lines 22-30. The Applicants respectfully submit that these references describe two separate methods, neither of which is cleaning as in claim 26. In particular, column 10, lines 64-68 occur in Smith '479 under the heading "Background of the Invention". The cleaning technique discussed there involves draining the process reservoir and refilling it with cleaning solution, then draining the cleaning solution after cleaning and refilling the reservoir. Column 11, lines 22-30 are provided under a different part of Smith '479, under the heading "Summary of the Invention". Column 11, lines 22-30, describe a process which occurs without draining feed (substrate) from the module. This is clearly a description of a different process than that described in column 10 as indicated both by the irreconcilable technical differences between the two processes and by their appearing in separate parts of the Smith '479 patent. Accordingly, an anticipation rejection cannot be based on a combination of column 10, lines 64-68 and column 11, lines 22-30 since these references describe two separate processes.

The Office Action cites the *Celeritas* case for the proposition that a reference is no less anticipatory if, after disclosing the invention, the reference then disparages it. However, the Smith reference neither discloses the invention nor disparages it. In contrast, Smith '479 discloses one process at column 10, lines 64-68, which is not a process as in claim 26, and disparages that process. Smith '479 then discloses another process at column 11, lines 22-30, but this process is also not as in claim 26. There is no anticipation unless the reference discloses all elements of the claim combined as in the claim under review. A combination of features from an embodiment of the invention in Smith '479 with features from a prior art embodiment, which is not part of the invention, cannot be

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used to support an anticipation rejection. Similarly, the *In re Susi* case does not apply since the Office Action is based on a proposed combination of embodiments, not any broader disclosure or non-preferred embodiment. Further, the *In re Susi* case dealt only with obviousness since the anticipation rejections had already been reversed by the Board of Appeals of the Patent Office. Accordingly, the Applicants submit that claim 26 is not anticipated by Smith '479.

Regarding claim 27, the Office Action submits that Figure 6 of Smith '479 and column 13, lines 50-57, disclose cleaning between once a day and once a cycle. However, a cycle in claim 26 involves draining the tank. The process described in Figure 6 and column 13, lines 50-57, does not have any cycle that involves draining the tank. Accordingly, claim 27 is not anticipated for this reason in addition to being based on claim 26, which is also not anticipated. Finally, the Office Action asserts that the sum of the products of chemical concentration and duration of cleaning "could be" between 5,000 and 10,000 min\*mg/L. A reference cannot be anticipatory on the basis that a range claimed "could be" disclosed in it.

Regarding the arguments against the newly added limitation in claim 28, the Office Action again cites column 10, lines 64-68 and column 11, lines 22-30. As stated above in relation to claim 26, these references do not disclose a single process but rather two separate processes, neither of which provide either the matter of claim 26 or the matter added to claim 28.

Regarding claims 29 and 30, these claims depend on claim 26 and are not anticipated for the reasons given above. In addition, the Office Action states that Smith does not require the cleaning process to occur for less than a month. In contrast, the Applicants submit that Smith describes at least Figure 4 as not being part of a process that would continue for a month or more. Further, the statement in the Office Action fails to discharge the onus on the Office to show where Smith teaches an embodiment that provides every element of the process claimed occurring over a period of at least one

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month. The Office Action does not provide this in relation to claims 29 and 30 and accordingly, the claims cannot be rejected for anticipation.

Regarding new claim 31, the Office Action submits that recovery cleanings at least one month apart is a result effective variable as in the *In re Boesch* case. However, the *In re Boesch* doctrine has no application to an anticipation reference. The *In re Boesch* case also requires optimization of a variable known to be result effective in a known process. The Office has not established that these conditions are present.

Regarding claim 32, the Office Action points to the reference in Smith to purifying "ground water" in column 20, lines 35-43. This reference refers to the process shown at Figure 6 only. The embodiment of Figure 6 does not provide all of the other elements of claim 32. Accordingly, there is no anticipation and the *Ex parte Masham* case does not apply.

Regarding new claims 33-35, claim 33 depends on claim 29. The Office Action does not cite any disclosure of Smith of a process having cleaning at regular intervals that also complies with the elements of claim 29. Regarding claim 34, the Office Action states that backwashing with permeate after backwashing with cleaning chemical is taught in Smith at column 12, lines 56-58. However, these process steps in Smith do not occur in relation to first and subsequent cycles as described in claim 34. Regarding claim 35, the Office Action refers to a process in Smith whereby a chemical cleaning solution is mixed in a tank and then fed to the membranes. The Office Action states that this is "equivalent" to the process described in claim 35. The Applicants submit that the process in Smith is not an equivalent and that, in any event, alleged equivalency of process steps is not sufficient to anticipate a claim. Regarding claim 36, while hollow fiber membranes are shown in Smith, they are not shown in combination with a method as described in claim 36. Accordingly, the Applicants submit that none of the new claims are anticipated.

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In addition to the arguments above, the Applicants submit that all of claims 27 to 36 depend on claim 26 and are not anticipated for the reasons given in relation to claim 26.

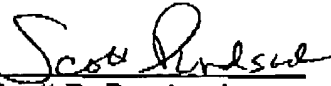
#### Other Comments

In the "Response to Amendment" section, the Office Action states that even if the Smith reference did not provide CT values within the ranges as claimed, those claims would have been held obvious in light of *In re Boesch* and the other cited cases. The *In re Boesch* case requires that the claims relate to discovery of an optimum value of a result effective variable in a known process. The present claims do not deal with a known process. The Office Action also does not establish that the CT ranges claimed are an optimum value consistent with any goal for optimization that would be understood by a person working with a prior art process without benefit of the Applicants' invention. Accordingly, the Applicants submit that the *In re Boesch* case does not apply.

For the reasons given above, the Applicants submit that the claims are allowable.

Respectfully submitted,

COTE et al.

By   
Scott R. Pundsack  
Reg. No. 47,330  
Tel: (416) 957-1698

**UNITED STATES  
ASSIGNMENT**

WHEREAS WE, PIERRE LUCIEN COTE, HAMID R. RABIE, NICHOLAS ADAMS, HIDAYAT HUSAIN, HENRY BEHMANN, STEVEN KRISTIAN PEDERSEN and JASON CADERA, whose full post office addresses are 26 Tally-Ho Drive, Dundas, Ontario L9H 3M6, Canada; 2665 Thomas Street, Unit 33, Mississauga, Ontario L5M 6G4, Canada; 37 Kipling Road, Hamilton, Ontario L8S 3X2, Canada; 88 Porteous Circle, Brampton, Ontario L6S 5C5, Canada; RR #1, Puslinch, Ontario N0B 2J0, Canada; 498 Rothesay Place, Burlington, Ontario L7N 3E2, Canada; and, 25 Camm Crescent, Guelph, Ontario N1L 1K2, Canada, have invented certain new and useful improvements in an invention entitled **CHEMICAL CLEANING BACKWASH FOR NORMALLY IMMERSSED MEMBRANES** for which an application for United States Letters Patent was filed on July 30, 2001 as serial No. 09/916,247.

AND WHEREAS, Zenon Environmental Inc., a corporation of Ontario, of 3239 Dundas Street West, Oakville, Ontario L6M 4B2, Canada, has acquired from us the whole right, title and interest for the United States of America and all other countries in and to the said invention and in and to any Letters Patent that may be obtained therefor, and in and to said application.

NOW THEREFORE, in consideration of the sum of One Dollar (\$1.00) and other good and valuable consideration, the receipt of all of which is hereby acknowledged, we, PIERRE LUCIEN COTE, HAMID R. RABIE, NICHOLAS ADAMS, HIDAYAT HUSAIN, HENRY BEHMANN, STEVEN KRISTIAN PEDERSEN and JASON CADERA, by these presents confirm that we have sold, assigned and transferred and do hereby sell, assign and transfer unto the said Zenon Environmental Inc., the full and exclusive right to the said invention in the United States of America and all other countries and the entire right, title and interest in and to any and all Letters Patent which may be granted therefor, and the entire right, title and interest in and to said application, and in and to any divisions, continuations, continuations-in-part and extensions of said application, together with the right to claim the benefit of the right of priority provided by the International Convention for

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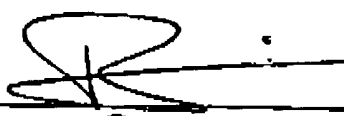

the Protection of Industrial Property based on said application for United States Letter Patent.

We agree that we will without further consideration do all such things and execute all such documents as may be necessary or desirable to obtain and maintain patents for said Invention and for additions and modifications thereto in any and all countries, and to vest title thereto in said assignee, its successors, assigns and legal representatives or nominees.

We hereby authorize and request the Commissioner of Patents and Trademarks to issue said Letters Patent to said Zenon Environmental Inc., the assignee of the entire right, title and interest in and to the same, for its sole use and benefit, and for the use and benefit of its successors and assigns, to the full end of the term for which Letters Patent may be granted as fully and entirely as the same would have been held by us had this assignment and sale not been made.

The undersigned hereby grant(s) the firm of Bereskin & Parr (Box 401, 40 King Street West, Toronto, Ontario, Canada M5H 3Y2) the power to insert on this assignment any further identification which may be necessary or desirable in order to comply with the rules of the United States Patent and Trademark Office for recordation of this document.


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SIGNED this 20<sup>th</sup> day of January, 2004, at Oakville, ON  
Witness PATRICIA RUIZ  
PIERRE LUCIEN COTESIGNED this 19<sup>th</sup> day of January, 2004, at Burlington  
Witness ANDREA LYNCH.  
HAMID R. RABIESIGNED this 20<sup>th</sup> day of January, 2004, at Oakville, ON  
Witness PATRICIA RUIZ  
NICHOLAS ADAMSSIGNED this 20<sup>th</sup> day of January, 2004, at Oakville, ON  
Witness PATRICIA RUIZ  
HIDAYAT HUSAINSIGNED this 20<sup>th</sup> day of January, 2004, at Oakville, ON  
Witness Patricia Ruiz  
HENRY BEHMANN





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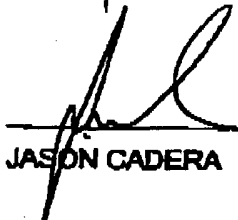
SIGNED this 20<sup>th</sup> day of January, 2004, at Oakville, ON.

  
Witness PATRICIA RUIZ

  
STEVEN KRISTIAN PEDERSEN

SIGNED this 19<sup>th</sup> day of January, 2004, at Oakville, ON.

  
Witness 

  
JASON CADERA